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ABSTRACT

A child acquiring a language must learn to correctly match the phenomena of the realworld which he perceives with the lexical items and the segregates and perhaps some of the grammatical categories of the language to be learned. He must correlatively learn the organization in meaning of and among these last named elements, that is, the internal semantic map of the language to be learned. The developmental stages he goes through and the kinds of mistakes he makes on the way toward approximating the adult matching and map must increasingly become a target study of language acquisition investigation. Study of adult language must first be undertaken in order to properly trace the course of child speech development; accordingly the first section of the present paper follows an initial probing into the notion of matching and mapping. The second section theorizes that certain semantically-contentful aspects of the realworld have a universal representation in language in general and hence have an identical abstract encoding at the base of each language; these aspects participate in universal analytic semantic-structure; and these structures together embody a unified and integrated pattern perhaps ultimately with simple principles of organization. (The analysis in this paper is based on 70 pages of utterances of two Samoan children and an adult.) (Author/AMM)

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SEMANTIC-COMPONENTRY AND SAMOAN-ACQUISITION

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0. Introduction

My thanks to Keith and Claudia Kernan, who collected excellent material on Samoan children's speech and allowed me to work with it. The analysis in this paper is based on the first seventy pages of transcription of an interchange of two Samoan children and an adult, taken during the Kernans' stay in Samoa. The numbers after examples refer to pages of this transcription.

I use the following abbreviations:

S. Sina, a girl

J. Jessie, a boy

T. Tanumia, a woman

A word of caution on my interpretations of the data is in order. I as analyst have been at several removes from the original data:

1. I was not present at the actual situation, where facial expressions and general context would have clarified much of what the children refer to.
2. I have tried to use the tapes of the actual situation, but they were of little help.
3. I have worked with transcriptions of the tapes, but these are translated by a Samoan with little knowledge of English.
4. I have not had the help of a native speaker.
5. My knowledge of Samoan is newly-acquired and far from colloquial.

I have done my best with reading between the lines in dictionaries, grammars, and the translations of the text, and with what I know about language in general.

1. Nonsystematic-Componentry

1.0 The Problem

A child acquiring a language must learn to correctly match the phenomena of the realworld which he perceives and which are pointed out to him and of which assumptions of existence held rightly or wrongly by his culture are transmitted to him -- including external events and objects and internal thoughts and feelings -- with the lexical items and the segregates and perhaps some of the grammatical categories of the language to be learned. He must correlatively learn the organization in meaning of and among these last named elements, that is, the internal semantic map of the language to be learned. The developmental stages he goes through and the kinds of mistakes he makes on the way toward approximating the adult matching and map must increasingly become a target-study of language-acquisition investigation.

1.1 Setting Forth the Notions

Investigation into the target of children's acquisition, that is, adult language, must first be undertaken in order to properly trace the course of their speech-development; accordingly in this section follows an initial probing into the notions of matching and mapping.

Among the techniques which can be used in determining the matching for a particular language is what may be called language-realworld co-variance, whereby alternatively a lexical item (in this paper indicated by underlining) is held constant and realworld phenomena (descriptions of which are enclosed in the special marks « ») are varied in order to determine the range and combination of them to which it refers, or a realworld phenomenon is held constant and a number of lexical items are tested in order to determine the set of them which

refer to it. For example the English word ride, as in

he rode to the store

can be determined to be in correct use if in the realworld situation the "he" of this sentence «was a passenger in a four-wheeled vehicle», such as a car or stage-coach, or «piloted a horse or a two-wheeled vehicle», such as a bicycle or motor-cycle, but not if he «piloted a four-wheeled vehicle» -- a realworld situation which falls outside of the denotative-range of ride and spills over into that of drive. Similarly the realworld event of «a man running along a sidewalk with a limping gait and arriving at a store» may be determined by the linguist as being equally-correctly referred to by any of the lexical combinations go to, run to, limp to, as in the sentences

he went to the store
he ran to the store
he limped to the store,

but not by the combination start out for, as in the sentence

he started out for the store.

In work on an unknown language, special effort must be made to determine in atomistic detail the exact boundaries of, and contents within, the denotative-ranges of the lexical items of the researching language so that the same determination can be made for the researched language, lest there be applied, by lack of delicacy, what amounts to little more than labels (or "glosses," an apt pun) from one language onto the other. For example in Atsugewi (a Hokan Indian language I have worked on where even approximate correspondences in denotative-range between lexical items from it and English are rare) a lexical item which one might at first gloss as "pluck" on the basis of its use in situations where English might say

I plucked woodticks from the horse
She's plucking her eyebrows
I'm plucking grey hairs out of my beard

would in fact be incorrectly so glossed because simultaneously in the relevant realworld situations must be present the aspect of 'searching for and singling out one at a time' the items plucked. Hence a realworld situation of «removing handfuls of feathers from a chicken», while remaining within the denotative-range of pluck, would spill over into the range of a different lexical item in Atsugewi.

It is inappropriate to apply such systematicity-implying terms as distinctive-feature or component and category to such idiosyncratic aspects of the realworld -- criterial though they may be in determining the applicability of one lexical item over against another -- as 'piloting four-wheeled vehicles' or 'searching for and singling out one at a time', exemplified above, or as the physical and kinesthetic properties of materials, exemplified below; it would be more appropriate to apply such a term as aspects itself or, perhaps, nonsystematic-components and nonsystematic-categories of the realworld. In a later section will be treated child-acquisition with reference to other aspects of the realworld, such as certain aspects of motion and spatial configuration, which in the language under consideration, and perhaps universally, do indeed pattern and structure systematically. Nevertheless, in investigating the internal semantic organization of a language, one can discover different types and different relations among types of nonsystematic-components and the lexical items which are sensitive to their presence or absence and their combinations.

Let us first consider the case of a lexical item which is correctly applicable to a realworld situation in which are simultaneously present certain nonsystematic-components -- themselves with roughly equal idiosyncratic reference-ranges and without hierarchical relations among each other -- and which therefore has a denotative range neighboring those ranges which share all but one, or all

but two, ..., components with it. If the reference range of a nonsystematic-component can be thought of as a Venn-circle, then such a lexical item can be seen as the intersection of the relevant Venn-circles, and the pattern of ever more distantly neighboring lexical items from it -- each of which in its own right can in turn be thought of as the center of such a "neighbor-field" -- can be seen as part of a lexical-lattice organization perhaps most typical of the majority of any language's meaning-interrelations. Such a lexical item is, for example, pry, which -- using it in conjunction with the particle off for the sake of concrete illustration -- is correctly applicable apparently only in a realworld situation in which are present at least the four nonsystematic-components listed below, and which, as can be determined by controlledly varying one or another of these components, is closest neighbors with such lexical item combinations as pull off, swing away, and pop off:

1. one object moves from the surface of another object

2. the instrument effecting the motion (crowbar, fingers, ...) comes between the two objects

If this component is present in a particular realworld situation, for example one involving a board in a wall, one could say

I pried the board off the wall (with a crowbar),

but if instead there is, for example, a handle on the board which is used to move the board from the wall, one can no longer use pry off, but must rather use some expression like pull off, as in

I pulled the board off the wall (by the handle nailed onto it)

3. the moving object is attached to (rather than merely in contact with) the stationary object, and offers resistance to removal

If in the realworld situation the board is instead, for example, connected by a hinge along its bottom to the wall and merely resting flush against it, one can no longer use pry off, even if an instrument is levered between them, but must rather express the situation in some such way as

I swung the board away from the wall (on its hinge)
(by pulling on it from behind with a crowbar)

4. [possibly] the moving object is attached over an area (not merely at a point) and comes free from attachment progressively (rather than all at once), perhaps undergoing some flexing in the process

If in the realworld situation several crowbars, for example, are simultaneously applied around the circumference of an attached board, one is less likely to use pry off than some such expression as

we popped the board off the wall (using several crowbars at once)

If the Venn-circular reference-range of any nonsystematic-component be taken by itself, then the reference-ranges of the various nonsystematic-components which intersect with it may be considered as constituting one form or another of a subpartitioning of the first component (all the more so where the intersecting components make no relevant distinctions outside the first component, therefore not being in line for consideration as superordinates with their own subpartitionings). In one case the subpartitioning will be exhaustive and non-overlapping, in another it will not; the reference-range of one nonsystematic-component with its subpartitioning will apparently constitute a "natural" nonsystematic-category with a "natural" division into components--"natural" because of a correspondence to apparently well-formed subparts either of realworld patterning or of psychological organization--whereas that of another will seem to be a rather arbitrary conjunction of unrelated referents. Where a language has a colloquial or learned lexical item, or the linguist can entertain a hypothetical one, invoked over the full range of the first, or superordinate, component, and has lexical items for each of that component's intersections with other components, there the former may be seen as a relatively more-generic lexical item in a hierarchical relation with the latter relatively more-specific lexical items, and the latter may be considered as constituting a quasi-distinctional paradigm.

To exemplify these notions, we can consider that the apparently "natural" nonsystematic-component of 'taking-through-the-mouth-into-the-stomach' is in English denoted over its full reference-range by the learned generic lexical item <u>ingest</u> and has an exhaustive subpartitioning into three non-overlapping parts by intersection with three, perhaps less "natural," nonsystematic-components:

one of 'chewing and swallowing "solid" material',
the intersection denoted by the lexical item eat, as in

he ate the apple;

one of 'swallowing liquid',
the intersection denoted, by drink, as in

he drank the milk;

one of 'swallowing a solid object',
the intersection denoted by take or swallow, as in

he swallowed the pill.

What would seem to be an equally "natural" component of 'taking-in-through-the-mouth', which would cover the range of 'ingesting' combined with that of 'smoking', is not represented by any single English lexical item, learned or colloquial. By way of immediate comparison of the English situation with that of other languages, Tzeltal has a finer subpartitioning of 'ingesting' (consisting primarily in the recognition of distinctions within our "solid matter" category) (information from Brent Berlin), while Mandan may indeed have a colloquial generic lexical item denoting 'taking-in-through-the-mouth'.

Another example of an apparently "natural" nonsystematic-component not represented by any generic English lexical item -- though we may make up such a term for it as to object-destroy -- would refer to 'interrupting the physical integrity of an object' and, in conjunction with components referring largely to the physical and geometric properties of materials, would seem to participate -- again, most clearly in certain central cases, gradually shading off into related notions -- in the componentry of an extensive network of lexical items, for example in that of the following four:

tear: a component referring to 'object-destruction', plus
a component referring to 'flexible, planar material',
such as cloth, hide,
as used in the sentence

the shirt tore;

snap: a component referring to 'object-destruction', plus
a component referring to a 'flexible, linear object',
such as rope, string,
as used in the sentence

the rope snapped;

shatter: a component referring to 'object-destruction', plus
a component referring to 'brittle material',
such as glass,
as used in the sentence

the window shattered;

break: a component referring to 'object-destruction', plus
a component referring to a 'rigid object',
such as a piece of wood,
as used in the sentence

the plank broke.

The lexical item break, in addition to its use here as a relatively-specific term on a par with tear, snap and shatter, also functions as a relatively-generic term encompassing a subportion of the denotative range of *object-destroy. Specifically, it may be used wherever snap, shatter, and specific-break are used; it may not be used in place of tear. Pending a more penetrating analysis, generic-break strikes one as an example of a lexical item incorporating a nonsystematic-component with a more arbitrary, or less than "natural", reference-range.

1.2 Investigating Children's Speech

One task that the above considerations imply for acquisition-studies is to determine at what ages a child makes what kinds of mistakes in assigning to the lexical items being acquired their correct denotative-range and simultaneous-componentry.

One kind of mistake in assignment a child apparently makes is using an adult relatively-specific lexical item without part of its simultaneous-componentry, thereby rendering it at least of more general application and perhaps even raising it to the status of a relatively-generic term in the functioning of his own speech. Bronowski and Bellugi refer to such restructurings as "overextensions" in their May 8, 1970 article in Science on the signing-acquisition of a chimpanzee:

> There are errors in her spontaneous signing which resemble the overextensions in children's early use of words. Washoe has a sign for hurt which she learned first with scratches or bruises. Later she used the sign also for red stains, for a decal on the back of a person's hand, and when she saw a person's navel for the first time.

The example given in this quote shows that the chimpanzee has used the sign neither to mean 'hurt' nor -- what it might have more likely been taken to mean -- 'scratch' or 'bruise', but rather to mean something like '(body-)surface irregularity', without any further limitations on the meaning from such simultaneous-components as 'arising from injury' or 'painful'.

Below are given four devised examples illustrating "overextension"; they are intended to be suggestive of one kind of speech situation which should be observed or elicited in research designed to plot out children's semantic maps:

1. 'ingestion':

when in fact	⟪someone is drinking water⟫, or ⟪someone is swallowing a pill⟫
a child might say	eat
meaning	"he's ingesting it"

2. 'precipitation':

when in fact	⟪it's snowing⟫
a child might say its equivalent of	it's raining
meaning	"it's precipitating"

3. 'digits':

when in fact	«the child points to its toe»
a child might say	finger
meaning	"digit"

4. 'an animal making-its-characteristic-sound':

when in fact	«a hen is clucking»
a child might say	chicken talk
meaning	"the chicken is making-its-characteristic-sound"

If an example like the last one should ever take place, an investigator should not automatically impute to a child using talk in such a situation the assumption that the child is imputing anthromorphic characteristics to an animal: the child might simply be restructuring a lexical item for use as a generic term where English in fact lacks one, having only a plethora of non-interchangeable specific terms, such as those in

the dog barked	the dove cooed
the horse neighed	the crow cawed
or whinnied	the cock crowed
the mule brayed	the hen clucked
the sheep bleated	the turkey gobbled

(Dakota, again by way of comparison, does indeed have a colloquial lexical item for an animal-to-make-its-sound -- information from Robert Hollow.)

It is possible that investigation will uncover children's restructurings of the denotative-ranges of lexical items away from the more arbitrary in the direction of the more "natural". An example of such a process would be manifest in a child extending the adult range of break to that of *object-destroy, as would be evidenced by utterances like

shirt break;

conversely, such a process would be manifest in a child restricting the range of break to denoting the object-destruction only of rigid objects, as in

glass break
stick break,

and extending that of tear to the object-destruction of all flexible objects, as in

shirt tear
string tear.

Investigation may uncover whether differently aged children semantically restructure the ambient language in still other ways, such as assigning to an adult generic term a highly specific denotative-range, or giving a lexical item a meaning quite unrelated to that of adult usage, or indeed divising their own lexical items for meanings felt necessary to express and unrepresented by adult lexical items encountered that far.

The presence or absence of errors of "overextension" in child speech is easiest to detect in those aspects of realworld phenomena which one might wish to consider as constituting a "natural" category for which a particular language has a relatively bountiful distinctional subpartitioning but lacks a generic term. Several instances of this situation have been given above for English; a number of instances from Samoan are set forth below. Here a "natural" generic nonsystematic-category is first identified, the Samoan generic lexical item for the category is listed for the few cases in which there is one, the Samoan specific lexical items are listed with their denotative-ranges delineated either extensionally or intensionally, and, from the transcriptional data worked on, the children's utterances containing these lexical items are given with their translations.

Though I do not presume, for the reasons set forth in the introduction, to give the last word on the correctness or incorrectness of various aspects of the children's utterances, it is clear from the data as laid out below that the children make many grammatical errors -- often in omitting functor words and affixes --

and make few semantic errors -- either in the assignment of correctly delimited ranges and correctly filled-in componentry to lexical items, or in applying these lexical items correctly to realworld events. In many instances, a semantically-contentful lexical item, well-chosen in its approposness to a situation, is used alone without functors or is emplaced in an otherwise sketchy, ungrammatical matrix-utterance. Apparently the developing child achieves a close approximation of the adult semantic map and its use before he does the same for the adult grammar. One might tentatively conclude that the human language-acquisition mechanism is geared to a primacy and integrity in content-words and to a secondariness in grammatical form, is sooner attuned to a control over organically-interrelated implicit components than to the expression of temporally-concatenated overt components, and is organized to manifest the expressively meaningful before the mechanical aspects of communication.

1.3 The Samoan Data

-1. The Generic Category of 'Object-Destruction'

māsae	for cloth, etc., to be torn
pā	for a tire, bottle, etc., to burst
motu	for string, rope, etc., to snap, break
ta'e	for glass, pottery, etc., to break, shatter, get smashed
gau	for a stick, bone, etc., to snap, break
malepe	for a structure (house, boat, box, bridge, etc.) to be broken
foa	for a person to break, crack open a rock, shellfish shell, skull, etc.
fa'i	for a person to break, snapp off a forked object (a branch, outrigging, etc.)
mafa'i	for a chair to be broken

1 S:	e māsae	it's torn ((speaking of a hat))	56
	.....		
S:	māsae 'iate ai?	torn by whom?	
2 S:	va'ai lea	watch out	63
	ole'ā leaga	it'll be bad	
	polo lea ia pā	the ball (will) burst	
3 J:	e motu ai le 'ula	the flower-necklace broke	69
S:	e Tanumia la motu la'u 'ula	Tanumia, my flower-necklace broke	
4 J:	o. 'ua ta'e	yes, it's broken((speaking of a chair))	33,33a
*:	sau va'ai laia	come look	34
	'ua ta'e 'iate 'oe	[the chair] was broken by you	

[NB. Going by the dictionary, the use in 4 of ta'e is incorrect, fa'i or gau or malepe being the expected form; however, I cannot tell but that the children might be correct for colloquial or local speech.][1]

-2. The Generic Category of 'Hitting'

tu'i — for a person to hit one object with another, so that one of them moves along a long axis
(e.g., drive a nail with a hammer, mash breadfruit with an implement)

pō — for a person to hit one flat surface across with another
(e.g., to swat a bug on a wall with a swatter, to slap a face with one's hand, to clap one's two hands together)

tā — for a person to hit a surface with the end of a long object
(e.g., to hit a ball with a bat, to strike a bell with a stick)

peti — for a person to hit something with a thrown knife

fasi — for a person to hit a child (with the hand or an implement) to punish him
(i.e., to spank)

sasa — for a person to hit an object repeatedly with an implement
(e.g., to thrash a lad with a rod, to beat nut-shells with a stick)

tapale — for a person to hit someone with a short, quick punch
(i.e., to box someone, e.g., on the ears)

moto — for a person to hit someone with his fist
(i.e., to punch)

1 S:	tao <u>tu'i</u> le fao	spear drive the nail	33a
2 S:	alu atu ta <u>pō</u> lou gutu	(I'll) go slap your mouth «J had just accused S of breaking the necklace»	75a
3 S:	<u>tā</u> mai pea, toe 'ai	keep hitting (it) here, then we'll eat «(context unclear)»	57
4 S:	sau fai Keith <u>fasi</u> lele fa'atagi 'ave o la'au	Keith (will) come spank that (kid) make- (him) -cry (he'll) carry a stick	45
5 J:	lē 'ai tamaiti lae <u>tapale</u> mata mea Saiete	those children not eat Saiete box their eyes[2]	44a

-3. The Generic Category of 'Making'

fai for a person to make something
(a generic term for the whole category, like Eng. make)

fau for a person to make an object by fastening pieces together
(e.g., to build a house, to construct a table, to fashion a canoe)

fafatu for a person to make something by placing pieces together
in an orderly arrangement
(e.g., to make a net, assemble a canned-goods display, build-up a cairn)

fatu for a person to make a song, a story
(i.e., to compose, make-up a song, story; cf. Eng. to write a poem)

gaosi for one to make things for eating
(e.g., to prepare a meal)

1 S:	fale lae	that house	40a
	fau fale lae	that house build [i.e., being-built]	
	se'i 'uma fale lae	until that house is finished	
2a S:	fai 'uma mea lea lia, a?	make all these things, huh? «(context unclear)»	
b S:	ō mai 'oulua e fai a'u ā'oga	you-two come do my school [work]	29a
c S:	se fai moega a'u	make my bed	59
d S:	e fai mai tala lae i 'o, 'o ai?	who made those words [i.e., spoke] about there?	60a

-4. The Generic Category of 'Fear'

fefe	for a person to be afraid of, fear someone, something (a generic term)
pala'ai	for a person to be afraid of, feel cowardly toward someone
popole	for a person to be afraid of, be anxious about something (e.g., the consequences of something)

1a J:	u <u>fefe</u> a'u lane	I'm afraid frog	31
b S:	e lē <u>fefe</u> a'u le lane	I'm not afraid the frog	43a
2 S:	e <u>pala'ai</u> Jessie 'ia tamaitiiti	Jessie feels-cowardly toward (the) kid	64a

-5. The Generic Category of 'Holding'

'u'u	for a person to hold something in his hand
si'i	for a person to hold a child on his lap
opo	for a person to hold something (e.g., a child) in both arms
ū	for a person to hold something in his teeth, with pliers
mau	for a person to hold something tightly in his fist cf. the Eng. forms <u>grip</u>, <u>clutch</u>, <u>clasp</u>

1 S:	<u>'u'u</u> vai lea mea	hold this thing «(reference unclear)»	36a
2 S:	ma le teine a lae <u>si'i</u> lana pepe, a?	and that girl is holding-on-her-lap her baby, huh?	17

-6. The Generic Category of 'Falling'

pa'ū — for an object to fall down through space

palasi — for an erect object to fall over, pivoting around the base contact (e.g., for a tree to fall over, a man to keel over)

sulu — for a person to fall down in walking

to'ulu — for a bunch of small objects (leaves, hair, fruit, etc.) to fall down, off, out

sau — for water in fine drops to fall down (upon) (e.g., dew to drop)

1 S:	uo. 'ua <u>pa'ū</u> lalo le ipu	oh-oh. the cup fell down	61a
2 S:	. . . <u>palasi</u>	. . . fall-over 《threatening to push over a lamp》	61_a

In view of Tanumia's use of <u>to'ulu</u> in referring to candy falling:

3 T:	va'ai nei <u>to'u'ulu</u> lole leaga	watch-out now the candies (will) fall (and get) dirty,	64

it is possible that Jessie's use of <u>pa'ū</u> in referring to candy falling is incorrect and an overgeneralization of the reference range of that form:

4 J:	e 'uā <u>pa'ū</u> lole lea a 'oe	this candy fall because of you	47a

-7. The Generic Category of 'Pushing'

tūlei — for a person to push an object along on a surface

'eu — for a person to push an erect object over, so it pivots about the base contact

1 S:	<u>tūlei</u> (3)	push-along-the-surface 《telling Jessie how to get the candy unstuck from the table》	26
2 S:	<u>'eu</u> mai le mōlī lea	(I) push-over this lamp	61a

I think it appropriate to present several generic categories for which I have found only one relevant utterance, on the assumption that a larger corpus gathered in more varied settings might just contain utterances with the additional lexical items that fill out the distinctional paradigm.

-8. The Generic Category of 'Age'

tuai for a thing to be old

matua for a person to be old
[but in compounds matua can refer to things, e.g., matuā'ofie, 'old dress']

1 S: 'ua tuai palugi the balloons are old 25

-9. The Generic Category of 'Sliding'

se'e for an object to glide along on a surface/through a medium
(e.g., a boat on, in the water)

se'ese'e " " " " " gently

solo for an object to slide along on a runner/in a groove
(e.g., panel door along its groove, curtain along its rod)

1 S: se'ese'e le va'a the boat glide-along gently 23

-10. The Generic Category of 'Covering'

ufi — for a person to cover something over with a single, rigid, planar object (i.e., to put a cover on, e.g. a lid over a pot, a house-shell over a floor-platform)

tanu — for a person to cover something over with a quantity of loose things (e.g., with rocks, dirt, leaves)

so'o — for an object to be covered with flat pieces joined edge-to-edge without gaps (e.g., a floor with planks, a house-exterior with mats)

'afu — for flexible planar material to loosely cover-over a surface (e.g., a sheet over a sleeping person)

[compare:
'ofu — for a person to have on a coat, an article of clothing; for a person to wrap food in a leaf]

1 S:	mai a'u (2) fea matu lole 'afu?	bring (it to) me where towel cover candy?	51

-11. The Generic Category of 'Air-Motion'

agi — for the wind to blow

feula — for a person to blow on, into an object (i.e., direct a stream of breath from the lungs onto, e.g., a flame, or into, e.g., a baloon)

ili — for the wind, a person to blow a wind-instrument

1 S:	a lole ili mai mea	that (guy) blew something «(hearing a horn)»	67a

-12. The Generic Category of 'Touching'

tago — for a person to touch an object (i.e., place the hand on) so as to feel it

taleu — for a person to touch an object so as to investigate it (e.g., a kid handling a toy in a store)

pa'i — for one object to touch against another object accidentally (i.e., make accidental contact with)

1 S: tago lou tei lea — (you) touch your sister there — 42a

2.0 Systematic-Componentry[3]

It can be theorized that certain semantically-contentful aspects of the realworld have a universal representation in language in general and hence have an identical abstract encoding at the base of each language; that these aspects participate in universal analytic semantic-structures; and that these structures together embody a unified and integrated pattern perhaps ultimately with simple principles of organization.

To the tentative extent to which linguistic insight to date has correctly isolated aspects of the realworld with such a role in language and has determined parts of the unified pattern within which these aspects function as elements, it may be appropriate to term such aspects and parts systematic-components and systematic-categories.

Each language in accordance with its own rules of transformation will permute, delete, and combine some, and leave untouched others, of the systematic-components in their structured interrelations in the production of its surface utterances. In this regard, the term conflation will here be used to refer to any transformational-lexical telescoping process in which two or more deep systematic-components come to be represented in a single surface form -- itself to be called a conflate -- with the attendant destruction of the more analytic structure in which they had participated. The first two lines in the following illustrative derivation may well be close approximations -- with the use of suggestive English lexical items for the abstract components -- of universal analytic deep semantic-structural phrases which, in the course of the application of specifically English transformational and lexical rules, pass through several progressively more conflated forms -- some of them themselves grammatical English surface phrases -- finally, in the case of English, becoming single surface lexical items:

of great extent from one point/side to the other point/side
of anti- great extent from one point/side to the other point/side

of great width
of anti-great width

of great width
of little width

wide
narrow

One task for developmental research which arises from these considerations is to determine in which cases and at what ages child usage differs from the adult norm in the direction of componential-analyticity reflective of deep semantic-structures and away from adult surface conflational forms, or, conversely, in containing forms idiosynchratically functioning as conflates of components standardly expressed in analytic sequences -- and in which cases it does not, coinciding instead with adult usage; and to determine which semantically-contentful systematic-components normally reflected in adult surface-structure are omitted from expression under certain circumstances -- and which of them are not.

Parts of the above postulated unified semantic pattern -- often tacitly treated as universal -- have had traditional recognition, for example, some more "grammatically"-functioning systematic-categories such as tense, causation, continuity, and number, with such category-members as mass and count, singular and plural:

continuity (continuous vs. discrete):

in space/location/nouns: mass vs. count

in time/occurrence/verbs: durative vs. semelfactive

number:

in space: singular, distributive, plural

in time: punctual, iterative, [plural verb (e.g. die-off)]

To these may be added some perhaps more novel categories and categorial components:

statomotion:	move and be-located
extension:	point and extent
sense:	at, to, from, along, "por"
sign:	positive, negative, neutral, opposite (anti-)

In the following subsections are discussed several additional systematic-categories -- configuration, direction, and some relatively grammatically-functioning categories -- and their bearing on the children's utterances in the transcriptional data.

2.1 Configuration

By configuration is here understood the system of specification -- either at the universal level of semantic systematic-componentry or at the surface of a particular language -- of the relations which the path of motion through space of a point, points, or an extent of particular description bear to another point, points, or extent in that space.

In the English surface configurational system, for example, figure such key lexical items -- themselves the result of much conflation -- as into, through, across, and around, a class of words which may be termed specific-configurationals.

English surface sentences of configurational motion, such as

the log rolled into the bin
the log rolled out of the bin,

most typically have undergone no more conflation of deep configurational structures than such as will result in separate lexical representation for the fact-of-motion (the verb, often additionally denoting the type-of-motion), for the specific-configurational path of the motion (a member of the in-around class), and sometimes for a component of the "sense" category (for example, to or of [derived from from]).

The following derivational sketches suggest some stages passed through from what again may well be universal deep-structures comprised of universal systematic-components -- here constituting configurational structures -- to relatively-surficial "skeletal" structures on which are based fully particularized, "fleshed-out" sentences such as the "log" examples above:

a point (N_1) moves to a point of the inside of an extent (N_2)
N_1 moves to a point in N_2
N_1 moves to in N_2
N_1 moves=in to N_2
N_1 moves in(to) N_2

a point (N_1) moves from a point of the inside of an extent (N_2)
N_1 moves from a point in N_2
N_1 moves from in N_2
N_1 moves from out N_2
N_1 moves=out from N_2
N_1 moves out-from N_2
N_1 moves out-of N_2

In a type of surface configurational sentence less typical for English, the typically separate items referring to fact-of-motion, specific-configuration, and sense are conflatedly represented in a single surface lexical item; often this more-conflated type exists as an additional option beside the more characteristic less-conflated type, also often involving a non-native less colloquial lexical item, as exemplified for volitional motion in the informationally-synonymous pairs

he went into the room
he entered the room

he went out of the room
he exited the room.

By contrast, Samoan in its most typical surficial format for the expression of configurational motion has distinct lexical representation for the "sense" category -- specifically i, 'i, and mai, roughly translatable as 'at', 'to', and 'from' -- and for the conflation of fact-of-motion with specific-configuration -- for example, ulu, ui and sopo, roughly translatable as 'move-in', 'move-along', and 'move-across'. Furthermore, some less typical additional option for expressing configuration, which for this language would entail a less-conflated surface expression -- for example, one involving the perhaps most generic lexical item for motion, alu, roughly translatable as 'go' -- is apparently often impossible.

The following list gives a sample of Samoan's configurationally-conflated surface-verbs with their associated sense-forms, matched against the approximately corresponding English forms which are presented both in the characteristic less-conflated mode and, where forms exist, in the more-conflated mode; for both languages N represents the noun in relation to which motion takes place and parentheses surround those parts of the expressions which may be grammatically absent from the surface utterances:

ulu ('i N)	for a person to go in (-toN) [to enter (N)]
ulufale ('i N)	for a person to go in (-to N, where N is a chamber [room, house]) (lit. to house-enter)
ulufafo (mai N)	for a person to go outside (of N, where N is house, village, country) (lit. to out-enter)
ui (i N)	for a person to go along (N, e.g. a road)
o'o ('i N)	for a person to go all the way (to N, e.g. a border) [to reach N]
te'a ane ('i N)	for a person to go past (N) [to pass-by (N)--also a lit. rendering of Sam. form]
sopo ('i N)	for a person to go across (N, e.g. a stream) [to cross (N)]
ta'amilo (i N)	for a person to go around (N) [to circle (N)]
fo'i	for a person to go back [to return]
a'e (i N)	for a person to go up (along N, e.g. a hill)
fa'aifo (i N)	for a person to go down (along N, e.g. a hill)
ta'ape	for people to go off in all directions (from one place) [to disperse]
lugaluga'i	for people to come together (from many places) [to gather]

The children in the transcriptional data used several analytic expressions of configuratinnal motion containing the lexical items alu and sau, roughly translatable as 'go' and 'come', which I am not in a position to adjudge -- for the reasons given in the introduction -- as to their correctness or incorrectness, specifically in regard to the possibility of their being over-componentialized and under-conflated; here I can merely list them and await native judgment as to whether there is not for each utterance a more-conflated and perhaps more correct form of expression, for example in 4 if there is not a more appropriate conflate for 'exiting a boat', or in 5, for 'rain coming down':

1.	J:	alu 'i lou fale lea	go to your house	70
2.	S:	alu 'ese	go away	57a
3.	S:	fa'aalu va'a	make-go (the) boat	60a
4.	S:	alu loa lalo ma le va'a:	get right down out-of the boat	37
5.	S:	eā lē toe sau lalo	(the rain) won't come down again?	57a

There is, however, one very clear example of correctly used configurational conflation involving specifically the partial conflate form ulufafo/ulu...fafo for 'go outside' (confer the list of Samoan configurational conflates above) instead of any kind of more analytic expression such as

alu ('i) fafo:

8:	fale lae iai maile	(in) that house there's (a) dog	24
	ma ulu e maile lea fafo:	and this dog goes outside	
	taufe'ai	(because he's) wild	

If the term correlation is understood to refer to instances in the production of a single sentence, a text, or a dialogue where two or more lexical items are used in conjunction with each other because they have a systematic-component in common, the data then contains a good example of configurational correlation; here, in the space of a short text, one child firstly uses with correct distinguishment the lexical items pa'ū for the translatory falling of a point-object

through space and palasi for the rotational falling-over of a standing long-object pivotally at its base, and moreover uses this latter word in correlation with the lexical item 'eu, here used in the sense of 'push-over', on the basis of its sharing with it the configurational component of 'rotation in a vertical plane':

S:	uo. 'ua pa'ū lalo le ipu	oh-oh, the cup fell down	61a
	pa'ū lalo le ipu a le sasa	the cup of sauce fell down	
	oka, e fai nei lau mea	oh, (I) do (it to) your thing now	
	tago nei a'u	I take-hold-of (it) now	
	'eu mai le mōlī lea	(I) push-over this lamp	
	'eu, 'eu, 'eu, palasi	push-over, push-over, push-over, fall-over	

2.1 Direction

Perhaps functioning as part of the postulated structural universal semantic-system is the category of what can be called direction, which includes the notions roughly renderable as 'away from the speaker' and 'toward the speaker' -- deep systematic-components conveniently indicated by the English lexical items thither and hither. If the form GO is used to indicate the deep directionally-neutral verb of volitional motion, then the English surface forms go and come may be considered the surficial lexical representates of the conflation of GO with thither and hither:

GO thither ⟶ go

GO hither ⟶ come;

where a more specific verb than GO, such as fly, appears in the place of GO in the derivation from depth to surface, the deep directionals have no option for conflation, nor is there any colloquial means for expressing them as independent morphemes at the English surface level: any directional distinction which can be assumed to be present at depth is thus lost at the surface:

he went to New York	(I am in Berkeley)
he came to New York	(I am in New York)
he flew to New York	(I am in Berkeley)
he flew (here) to N.Y.	(I am in New York)

In Samoan, where directional conflation takes place it is describable much as for English. By contrast, however, where no conflation is possible, there is easy colloquial means for the surficial expression of direction in the independent lexical items atu, 'thither', and mai, 'hither'; specifically, the distinct plural form for volitional (and other) motion, ō (itself a conflate of the systematic-components plural and GO, see below), does not admit of conflation with the deep directionals, which then rely for their expression on the independent surface forms:

GO thither	⟶	alu	'go [sg]'
GO hither	⟶	sau	'come [sg]'
pl-GO thither	⟶	ō atu	'go [pl]'
pl-GO hither	⟶	o mai	'come [pl]'
fly thither	⟶	lele atu	'fly thither'
fly hither	⟶	lele mai	'fly hither'

The children in the transcriptional data apparently never once make a mistake in the expression of direction, whether conflational or analytic as required by the adult norm, as for example would be the case if there had occurred such an under-conflated expression as

*alu mai;

among the many instances of correct usage are:

S:	toeitiiti sau Keith	Keith almost came	57
S:	fai mai e ō mai	say that (they) come «(speaking about a family)»	32

In another instance involving correlation across dialogue, one Samoan expression for 'bring' is in correlation with another expression for 'bring' by virtue of their having in common the containment of the systematic-component 'hither', for the one expression conflationally while for the other analytically:

T:	'o ai na sau ma ia le tusi o Malia'i?	who brought Malia'i's letter with him? [Samoan idiom, literally: 'who came with him Malia'i's letter?']	32
S:	'aumai mea Seu	Seu brought (the) thing [i.e., 'it']	32a

2.3 "Grammatical" Categories

In particular for the more "grammatically"-functionally semantically-contentful systematic-components, such as negation and opposition, causation, and plurality, arises the question of omission from expression in child speech and of the possible influence against omission coming from the existence of conflated forms.

Casual inspection of the data did not reveal the expression of 'negation' to be prone to omission, either in conflated form (confer the truth/lie and go/stay alternations, examples 2 and 6 in the following section) or analytically with the independent negative particle lē; while the expression of 'opposition' has no special independent lexical representation, it appears equally vouch-safed from omission in conflated form (confer the high/low alternation, example 5 in the next section).

The surface expression of 'causation' in an adult language is generally accomplished by the use, in various proportions, of three means:

1. independent lexical or affixal expression, as in English make talk or bestir, contraposed to the non-causitive talk and stir;
2. "overt" conflational expression, as in kill as opposed to die;
3. "covert" conflational expression, whereby the deep causitive-component -- assumedly clitically-attached to the non-causitive verb at mid-derivation -- is deleted, evidence for its presence at depth being adjudgable from the surface only by word-order or context, as in the melt of

I melted the snow

as against the melt of

the snow melted.

I suspect -- and here investigation is needed -- that for any language the first of these means for the expression of causation is prone to component-omission by children, it thereby acquiring the surficial appearance of the third means. Not enough examples of causitive as against non-causitive usage appeared in the Samoan data to justify a generalization for this language.

In Samoan the expression of plurality in the verb -- though this "plural" might better be considered a copy of an elsewhere-located systematic-component of 'plurality' transformationally attached to the verb, rather than the systematic-component itself -- can be represented at some stage in the derivation as

pl-V,

where pl is often realized either as a preposed reduplication of the verb's penultimate syllable or as a prefix, both always unstressed. This syllabically-independent expression of plurality is in fact for the most part omitted by the children in the data. However, as already seen in the relevant example in the preceding section and as in the following example, wherein parallel sentences differing mostly in the containment of the singular or the plural form of the same verb are uttered within a short space of each other --

S:	alu nofo nofoa lae	go [sg] sit (on) that chair	33
	tā ō nofo le nofoa lae	let's go [pl] sit (on) that chair	33a

the children make no mistakes with a conflational plural verb form such as is had by the verb "to go". The lack of mistakes in this situation may be additional evidence of the primacy and integrity attached at a certain stage of child-development to the surface lexical item -- even where the lexical item represents a conflation with an otherwise omitted grammatically-functioning component.

3. Commutation

The examples to be presented in this section demonstrate, I believe the apprehension the children in the data have of the concept of "one component of an utterance as singled out from the rest of the utterance" (and in fact demonstrate the verbal play which is based on the apprehension of components).

To establish some terms:

I will call the process of changing one component of an utterance while keeping everything else constant -- commutation;

the position of the component changed -- the commutation-slot;

the commutation-slot together with the fixed remainder -- a formula;

and the several utterances which result from there being different entries in the commutation-slot -- a commutation-series.

For the data at hand we have to recognize three kinds of series, depending on what has been treated as a component:

1) the component is a gap in, or unspecified aspect of, the utterance:
everything in the last utterance of the series is kept constant
and one new word is added;

2) the component is a word of the utterance:
everything but one word of the last utterance of the series is kept constant
and that word is commuted;

3) the component is a semantic-feature of one word of the utterance:
everything but one systematic-component of one word of the last utterance
of the series is kept constant,
and that component is commuted.

Number 3 is of course the most interesting for the concern of this division of the paper with children's control over the systematic-components underlying a conflated lexical item.

Further, borrowing terms from music,

I will call a commutation series in which two speakers alternate utterances -- an antiphonal series, e.g. as is often heard between two English-speaking children:

A. did not

B. did too;

and a commutation series produced by one speaker alone -- a monodic series.

Where two or more components of an utterance are commuted in correspondence with each other, we have a process which can be called -- correlative commutation -- as e.g. in the English two-utterance series

I have a pen in my house, and

he has a pencil in his garage.

As is perhaps especially apparent in this last example, serial commutation in English calls forth various special intonations and stressings (I have called attention to them here with the symbol ^), which have so far not been adequately noticed or analyzed even in adult English, let alone Samoan or child-speech (though I suspect from my own casual observations that such special intonations and stressings are among the earliest correct acquisitions of children).

Taking first the antiphonal series, let us now consider the examples.

1. The following is an exchange between Tanumia, the adult, and Sina. In the terms defined above, it is an antiphonal series roughly of the 1st type, i.e. where each succeeding member of the series adds a word. Notice that Sina has an active share in the word-adding and is not merely repeating after the adult.[4]

T:	ae fea le isi falevao 'outou?	but where is your [i.e., your family's] other toilet?	39a
	e leai se fale	the house has none	
S:	lae 'ō, lae iai	there thatplace, there there's (one)	
T:	'ō fea?	thatplace whatplace?	
S:	i 'ō	at thatplace	
T:	i 'ō i fea?	at thatplace at whatplace?	
S:	i 'ō ā	right at thatplace	
T:	i 'ō ā i fea?	right at thatplace at whatplace?	
S:	'ō lae iai, sami	thatplace there there's (one), sea (i.e., at the sea)	

Taking Sina's four utterances in the above, I consider the core within them constituting an additive commutation series to be as follows:

'ō

i 'ō

i 'ō ā

(i le) sami

2. J:	o. 'ua ta'e	yes, it's broken	33
S:	pelo ia	that's a lie	
J:	sa'o	(the) truth	
S:	pelo	(a) lie	
J:	sa'o	(the) truth	
S:	pelo	(a) lie	

This is an antiphonal series of the 3rd type, i.e. where the commuted component is a systematic-component. It can be said equally of Samoan sa'o/pepelo and English a lie/the truth that both members of the set have part of their meanings the same,

viz. a common reference to the dimension of 'veracity', and differ from each other by one semantic-feature, a feature which refers to the pole of the dimension, viz. 'positive' or 'negative'. The children in their interchange are thus indeed commuting one component while keeping the remainder constant.

The rest of the examples will be instances of monodic series.

3. S:

a. fale lae	that house	40a
b. fau fale lae	that house build [i.e., being-built]	
c. se'i 'uma fale lae	until that house finished	
[se'i 'uma fau fale lae]	[until that house finished build (i.e. being-built)]	

(NB. Observations similar to what follows are discussed on page 10 of Dan Slobin's working paper "Universals of Grammatical Development in Children".)

This example is perhaps a special subclass of type 1 monodic series, where the word-by-word additions are produced by the child not for play or emphasis, but rather as if he has to build up to the phrase which fully contains all the components he has in mind to express (thus the addition of fau from a to b, and of se'i from b to c). Moreover, if the above example is representative of a general phenomenon, it appears that the number of idea-words (or relations between idea-word pairs) a young child can express in an actually produced utterance is smaller than the number he can have in mind to express, so that he must resort to a strategem: producing two or more utterances partly overlapping each other in content, where each constitutes a sub-part of the intended utterance. Thus above, I have put in brackets my extrapolation of what the child might have had in mind to say, an utterance containing, in a rough way of reckoning, three idea-words:

'uma	'finished'
fau	'build'
fale	'house',

and where the b and c utterances of the child's production each contains a different two-member subset of these three words.

4.

(1):

a J:	e tu'a tā so'o lea pātē	the bell keeps ringing [meaning: the thunder keeps peeling]	66
b S:	ae lē iloa 'o le fāititili	but he doesn't know it was the thunder	

(2):

c J:	alu lou fale_lea	go (to) your house	70
d	'ua tā mai pātē	(the) bell is ringing « a real bell rings this time? »	
e S:	e fai mai Jessie pātē	Jessie said (it was a) bell	
f	ae lē iloa fa'aili	but he doesn't know (it was a) whistle	
g S:	'o fa'aili fai mai mea le...	said the thing was (a) whistle	
h	ae lē iloa fāititili	but he doesn't know (it was the) thunder	

In this example, a-b may be taken as a two-utterance antiphonal series (although Sina addresses her utterance not back to Jessie but to a non-existent third party), which then becomes the basis for a two-utterance monodic formula which Sina uses twice: e-f and g-h. The structural design of all three series is as follows:

1. a singling out (expressed explicitly in e and g)
2. of one word in a prior utterance (pātē in a, pātē in d, fa'aili in f)
3. and its replacement with another word (fāititili in b, fa'aili in f, fāititili in h),
4. leaving the rest of the prior utterance unchanged;

and of course the child's intent in all three series is to correct an "incorrect" form with a "correct" one.[5]

Thus in this beautiful example the child not only manifests type-2 commutation but also handles type-2 communication metalinguistically.

5.

S a.	fale manaia lea	that pretty house	34a
b.	fale maualuga lea	that high house	
c.	fale maulalo lea	that low house	

This series as a whole is certainly of type 2, i.e. the child repeats a formula three times, changing one word each time. However, the sub-series consisting of b and c can be taken as an example of type-3 commutation, since not only is only a part of a word commuted, but also that part is comprised of two forms which share all but one systematic-component. Thus luga and lalo, such as their closest English equivalents up and down, both refer to directionality and to vertical-orientation, contrasting only in the sign of the directionality.

6.

S:	lē alu lā a'u, tū	I (will) not go, then, (I'll) stand [=stay?]	46a
	e le'i alu a'u, e tū	I will not-yet go, (I) will stand	

We find within either of the above similar utterances a contrast made by the child between alu and tū, which have the situational meanings 'go' and 'stay' (and I bet tū is colloquially used for 'stay', though the dictionary gives only the word for 'sit' in this meaning), thus illustrating the child's grasp of the componential equations

not go = stay
not stay = go,

an example of type-3, or systematic-componential, commutation.

7.

S:	sāu lā	come on	70
	tā fusu	let's fight	
	palaʻāi	you (will) lose	
	ʻae mālō aʻu	but I (will) win	

The series consisting of the bottom two lines is an example of explicit correlative-commutation involving two components. Moreover, the commuted components differ from each other by a single feature, so that this is again an instance of type-three.

More rigorously, we can consider the Samoan verbs, like their English equivalents,

win (-over)

lose (-to),

not as distinct deep-structure lexical items differing from each other by only a component, but rather as suppletive surface-forms of a single deep-form, where the determination of surface-form is made on the basis of syntactic considerations such as arise from the following equation:

A win-over B

= B lose-to A.

4. Notes

1. The following are additional examples from the data of the use of words for object-destruction. As can be seen, they are used evocatively, so that I cannot ascertain the aptness of their usage:

1 S:	ta'e le mata	your eye get-busted	64a
J:	pā ma le ulu	and my head get-busted	
	e mata pa	my eye get busted	
	loa, ta'e loa	bust right away	
2 S:	sau a nei gau ua 'outou	come here, I'll break you	69a
J:	loa tata'e 'outou	then break you	70
J:	latu tatipi 'oe	go cut you	70a

2. Note also Sipili's utterances from table 2 of Keith Kernan's dissertation (it is not discernable from the context whether child intended any referential distinctions between the words):

#36.	fasi 'oe	spank you
#37.	sasa a'u	beat me
#39.	tapale 'oe	box you

3. The notions sketchily introduced in this section will be joined by others in a theoretical treatment with detail and exemplification from other languages in two works in preparation -- a shorter paper and my dissertation.

4. 'ō can be regarded as a conflated surface form for a deep-structure noun phrase,

that (beyond the range of sight) place,

which, together with i ("at"), might best be rendered into English as

over there (out of sight).

5. As an aside, I cannot resist trying to analyze in detail the interpersonal aspects of this interchange, just because I find it so interesting.

a. Hearing the thunder yet again, Jessie comments on it, but instead of referring to thunder booming, he refers to a bell ringing. I think he is making no poetic innovation here, but rather correctly using an established cultural poetic image of thunder, my only evidence being that elsewhere in talking about thunder both children refer to "the bell of Jesus".

b. Sina, who elsewhere shows her familiarity with the image, here overrides her knowledge apparently in order to enter into an adversary interchange with Jessie, and corrects him in the direction of referential accuracy. Moreover, in addition to correcting him, she takes the tack of addressing a non-existent adult, referring to her correctee in the third-person, thereby establishing the setup of 'we grownups know better, but Jessie is too stupid'.

c-d. A little later Jessie, annoyed with Sina, tells her to go home, seizing on a sound he has heard outside (I gather that this time someone has rung a real bell or blown a whistle, rather than there being any thunder) and, either correctly or incorrectly calling the sound a bell, bases his command on the fact that the bell-ringing summons people (I think it is used to call children to school).

3-f. Sina, still in a disdainful, corrective mood, seizes on Jessie's use of the word "ball" as an indication that he has again made a mistake and, whether rightly or wrongly for the realworld situation, corrects his pātē to fa'aili (which can mean "whistle", a "harmonica", or a "band"), using the same formula as before.

g-h. Apparently feeling that what she had just said was not a devastating enough correction, or perhaps taking her own correction to be counterfactual, or perhaps for the pure pleasure of making corrections and enjoying the rhythm of formulas, Sina now leaves referential reality altogether, asserting (g) that Jessie has just called the sound a whistle, and (h) he was wrong, it was really thunder.